

## Guide to the Lichens of the New York Area—Part 7

G. G. NEARING

Group 8. The Blister Lichens. Papery Lichens of small size growing in rosette form with narrow branches and lobes, the parts of a few species puffed or swollen. Color varies from gray to brown, greenish and white. Fruits black, gray or dark brown, often frosted with gray or white; dull, not shining. Spores 2-celled, brown or blackish.

*Physcia*. All the species in Group 8 belong in the genus *Physcia*, which here includes *Anaptychia* and *Pyxine*, as the differences on which these two genera are founded seem unimportant. Blister Lichens resemble the smaller Shield Lichens (*Cetraria* and *Parmelia*) of Group 5, from which they can usually be distinguished—easily by microscopic examination of the spores, those of *Physcia* being dark colored when mature and plainly 2-celled, while the Shield Lichens have colorless, undivided spores. Under the hand lens the fruits of *Physcia* are dull, while those of most of the Shield Lichens are somewhat shiny. The frosted or pruinose appearance often seen on the fruit disks of *Physcia* is absent from the Shield Lichens. *Physcia* fruits are usually black, slate-gray or blackish brown, in contrast with the chestnut-brown, yellow-brown, greenish, or rarely yellowish gray which prevail among the Shield Lichens. The upper surface of the lobes and branches of *Physcia* is dull, often powdery, and without any yellowish tint, though the interior may be yellow. Shield Lichens on the other hand have usually a somewhat shiny surface, especially on the tips, and many are distinctly yellowish. These characters, taken together enable the lichenist to separate the two important groups in the field. Algal cells *Protococcus*.

(Three more or less upright species of *Physcia* will be found with the Stalked Lichens in Group 4.)

### *Physcia sorediata*. SPOTTED BLISTER LICHEN

Also called *Pyxine sorediata*. Found throughout the New York area rather plentifully on tree bark, occasionally on rocks. It forms rosettes up to 6 or 8 cm. across, which cling closely and cover their area completely, leaving no considerable spaces between the parts,

but with hardly any overlapping. Branches and lobes are usually 1 to 2 mm. wide, with margins crowded upward where they meet, and breaking into mounds of whitish or blue-gray soredia up to 1 mm. or more in diameter. These in contrast to the brownish gray or purplish gray upper surface, which is often rather dark, give a conspicuously spotted appearance. The rounded tips are usually depressed and somewhat saucer-shaped. The under surface is pale at the tips, becoming black, with many similarly colored, sometimes branched holdfasts usually shorter than 1 mm. The interior, seen by scraping off the upper surface, is a dull yellow pith, not white as in most Papery Lichens.

Fruits rare, up to 1.5 mm. in diameter, black or frosted white, with a thin, blackening rim. Spores 2-celled, brown, 17 to 28 by 6 to 10 microns.

As *Physcia sorediata* rarely fruits in this region, all the characters noted above should be studied. The peculiar pattern made by the touching margins and close-clinging, depressed tips, with the uniformly dusky color, spotted by soredia, give an appearance which, once well learned, is easily recognized, but a beginner must compare this with *Parmelia tiliacea* (Group 6), *Cetraria placrodia* (Group 5), and *Physcia stellaris*, none of which have soredia, and with *Physcia speciosa*, *P. astroidea*, *P. caesia* and *P. obscura*, all of which, though bearing soredia, have more space between the parts. These other lichens all have white pith, and from them the yellowish pith of *P. sorediata* is sufficient distinction where it can be seen, requiring only a good lens and a little careful scraping with the knife or fingernail. It must not be confused with the orange-buff pith of *P. endococcinea*, which is visible from beneath the lichen, or with the bright blood-orange pith of *P. endochrysea*. The closely related *P. Frostii* is smaller, paler, white within, and found only on rocks.

#### *Physcia Frostii*. FROST'S BLISTER LICHEN

Also called *Pyxine Frostii*. Found on granite, shale and sandstone, usually on a vertical face of the rock, in shade. Uncommon. It forms very flat, close-clinging rosettes up to 3 cm. across, with parts usually about 0.5 mm. wide. The aspect resembles a smaller *P. sorediata*, but the color is pale gray with cream-color tips. The parts also, instead of flattened, tend to be convex, and their margins

cling to the rock instead of being crowded upward. The mounds of powdery soredia, less than 0.5 mm. across, are centered on the branches rather than on their margins. In some cases there are spaces between the parts. The pith is white, not yellow.

Fruits very rare, up to 0.8 mm. in diameter, black. Spores brown, 2-celled, 14 to 20 by 5 to 7 microns.

*Physcia Frostii*, one of the smallest of the Papery Lichens, suggests the intermediate forms in Group 14, verging on the Crust Lichens. It could be mistaken for the very common *Crocynia zonata* (Group 14), which has a darker, often blackish center, and two or three conspicuous zones of pale tips. *Lecanora muralis* (Group 14) is colored like *Physcia Frostii*, but has much shorter, broader lobes, with lifted margins, and bears many pale buff fruits. *P. tribacia* has lifted tips, white beneath, while the tips of *P. Frostii* cling closely, and are black beneath. *P. teretiuscula* is smaller, with even narrower and separated parts, tapering to pointed tips, and has minute soredia, while the soredia on *P. Frostii* are comparatively large heaps. *Rinodina oreina* (Group 14), though of like habit, and with similar spores, is much darker, distinctly greenish, without soredia, and with frequent blackish fruits.

#### *Physcia speciosa*. PLUME LICHEN

Also called *Anaptychia speciosa*. Frequent on tree bark and mossy ledges in open woods throughout the New York area. It forms rosettes up to 10 cm. and more across, made up of graceful branches with feathery divisions, the parts of rather uniform width, 1 mm. or more, the tips slightly lifted. The upper surface is greenish to ashy gray or almost white. The upward-curling margins break into pale blue or white, dusty soredia, which are often crescent-shape, accenting the pattern of the lobes. The under surface is white, with whitish holdfasts some of which might be considered marginal hairs, which spread as much as 2 mm., often plainly visible from above.

Fruits are rare, brown, cup-shaped, up to 7 mm. in diameter. Spores 2-celled, brown, 22 to 34 by 12 to 15 microns.

Though not often seen in fruit, *Physcia speciosa* will be recognized at once by its graceful branches edged with pale blue dust, and the spreading white hairs below. It is easily distinguished from

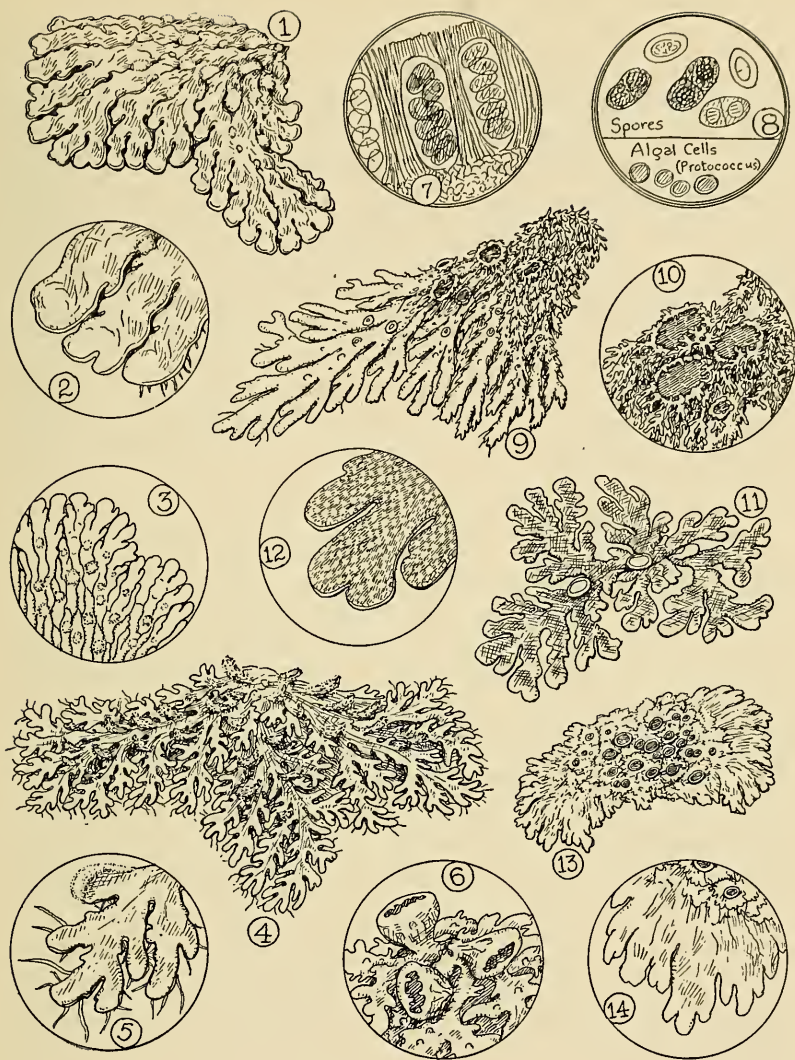


PLATE 11

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| Fig. 1. <i>Physcia sorediata</i> , gray or drab.           | Fig. 8. <i>P. aquila</i> , spores in various stages.          |
| Fig. 2. <i>P. sorediata</i> , tips.                        | Fig. 9. <i>P. aquila</i> , brownish, when wet green.          |
| Fig. 3. <i>P. Frostii</i> , tips, pale gray to cream.      | Fig. 10. <i>P. aquila</i> , fruits.                           |
| Fig. 4. <i>P. speciosa</i> , gray, with pale blue soredia. | Fig. 11. <i>P. pulverulenta</i> , brown with white particles. |
| Fig. 5. <i>P. speciosa</i> , tips and soredia.             | Fig. 12. <i>P. pulverulenta</i> , tip.                        |
| Fig. 6. <i>P. hypoleuca</i> , fruits.                      | Fig. 13. <i>P. adglutinata</i> , dull brown.                  |
| Fig. 7. <i>P. aquila</i> , spore layer.                    | Fig. 14. <i>P. adglutinata</i> , tips.                        |

the somewhat similar *Parmelia physodes* (Group 5), which has a black under surface, brown at the tips. *Cetraria placorodia* (Group 5), though whitish beneath, has no soredia, nor widely spreading hairs, while its upper surface glistens slightly. *Parmelia ambigua* is tinted with yellow and has a black under surface. *Physcia sorediata* differs in its darker color, dark under surface, and touching parts. *P. obscura* and *P. caesia* are dark beneath, with dark holdfasts. The only species of *Physcia* which requires study to distinguish from *P. speciosa* is its own subspecies *P. hypoleuca*, which has blackening holdfasts and a peculiar under surface, but is often otherwise similar. *P. astroidea*, a smaller lichen, has its soredia massed in the center.

*Physcia hypoleuca*. FIG LICHEN

Also called *P. speciosa* var. *hypoleuca* or *Anaptychia hypoleuca*. Found on trees and sometimes on rocks, fairly frequent on limestone. The rosettes, up to 10 cm. across, with parts 3 or 4 mm. wide, have a rampant, lumpy habit, with long, gracefully curving branches, the tips somewhat lifted. Warts and tiny lobes occur scattered along the margins, or may cover most of the lichen. The upper surface is pale gray or whitish, the under surface very white or buff, with blackening holdfasts. A vertical section shows under the microscope that the normal lower layer of cells is missing near the tips, and the under surface is really exposed pith, with a marked silky appearance.

Fruits not common, often somewhat fig-shaped, the deeply concave spore surface dark brown, the thick, incurved rim often bordered with tiny lobes, which may radiate from it, or grow inward, partly hiding the disk. Spores 2-celled, blackish, 25 to 38 by 14 to 20 microns.

*Physcia hypoleuca* differs from *P. speciosa* in the less frequent marginal soredia, and the presence of tiny lobes and warts. Also the holdfasts turn dark. From this and other species which resemble it, the bare pith beneath the tips is sufficient distinction, but this character requires experience to detect. The presence of lobes on the fruit-rim is another unusual character, shared by *P. aquila* and *P. pulverulenta* in this group. *P. aquila* is typically brownish, turning green when moist, and the under surface and holdfasts are

usually pale brownish. *P. pulverulenta*, also brown, is dotted with white particles. *Parmelia frondifera* (Group 6), one of the few other lichens with lobed fruit-rims, has the upper surface somewhat shiny.

*Physcia aquila*. SHAGGY LICHEN

Also called *Anaptychia aquila*. Frequent on mossy rocks and tree-bases in deep woods throughout the New York area, especially in limestone districts. The irregular rosette masses grow as much as 10 cm. across, and often 5 mm. thick, with densely overlapping parts. The long, straight branches, 1 mm. or so wide, may be hidden under tiny lobes often only 0.1 mm. wide, which spring from any part of the lichen, and grow in various directions, but mostly downward, giving it a singular, shaggy, feathery appearance. In this condition, it may be called var. *detonsa*. The color is grayish to tawny brown when dry, pale yellowish brown in old herbarium specimens, moss-green when fresh and moist, the under surface pale brownish, rarely blackening, with usually pale holdfasts.

Fruits usually plentiful, up to 5 mm. in diameter, brown or blackening, with a thickish rim from which often spring prongs and lobes like those on other parts of the lichen. Spores 2-celled, brown or blackish, 28 to 43 by 16 to 25 microns.

*Physcia aquila* is easily recognized by the small lobes with which it is overgrown, and the brownish color. There is little need to distinguish the more densely clothed var. *detonsa*, as any degree of this development may be found on different parts of a single specimen. The presence of these small lobes on the fruit rims distinguishes it from all other species of *Physcia* except *P. hypoleuca*, pale gray, and *P. pulverulenta*, brown with white particles, neither turning particularly green when wet, while this color change is marked in *P. aquila*. A somewhat similar mass of small lobes is seen in *Pannaria microphylla* (Group 10), but in this the parts are smaller and shorter, growing usually close against a blue-black under-crust. *Parmelia frondifera* (Group 6) is paler and shining, with a black under surface.

*Physcia pulverulenta*. MEALY BLISTER LICHEN

Found infrequently on mosses, trees or rocks, preferring limestone. It may form rosettes up to 8 or 10 cm. across, with parts 3

or 4 mm. wide, but is more likely to be met in a dwarfed or straggling state. The often short branches 1 or 2 mm. wide, may broaden abruptly to twice that width at the neatly rounded, often lifted tips. The upper surface is chestnut brown to pale purplish brown, but appears whitish because of the many white, mealy particles 0.01 or 0.02 mm. across, distributed rather regularly, and plainly visible under the lens. At times these particles appear only on small areas near the tips. At other times they whiten the entire lichen, so that the brown color can hardly be seen. Tiny whitish lobes and granules may cover the entire lichen, and there may be soredia. The under surface at the tips is whitish, elsewhere blackening, with black root-like holdfasts.

Fruits locally rare, up to 5 mm. across, brown or frosted white, with a rim which may be smooth, lumpy or lobed. Spores 2-celled, brown, 23 to 40 by 12 to 21 microns.

*Physcia pulverulenta* is marked from all other local Papery Lichens by the white particles on the brown upper surface. In specimens where the particles are few or lacking, the coloring is usually dark, but some at least of the tips whitish beneath, a rather unusual combination. The tiny lobes seen on some specimens are short and obtuse. No further comparisons are needed to determine the normal form, but sometimes the brown surface is very pale, nearly white, when it approaches *P. granulifera*, a species found further west. At first glance it might be mistaken for a form of *P. stellaris*.

#### *Physcia adglutinata*. CLINGING BLISTER LICHEN

Occurring in the New York area, but not common, and so inconspicuous that it escapes attention. It grows on tree-bark in rosettes commonly 2 or 3 cm. across, but inclined to fall away and disintegrate, or to remain so undeveloped as often to resemble a Crust Lichen, with no visible papery structure. The central parts are nearly always crust-like with tiny lobes 0.1 mm. across or narrower, barely emerging here and there, or merely etched on the crust, becoming evident where it cracks into irregular patches 1 to 2 mm. across, where they show on the free edges. Papery branches and lobes tissue-thin are seen at the edge of the rosette, glued tight against the bark, and vaguely dividing into parts about 1 mm.

across. The color is dull, grayish brown, with a pale under surface difficult to see.

Fruits usually present, up to 2 mm. in diameter, but usually smaller, blackish, with a thin, brown rim, somewhat notched. Spores 2-celled, brown, 13 to 22 by 7 to 10 microns.

*Physcia adglutinata* is more likely to be mistaken for one of the Crust Lichens than for any other Papery Lichen, but some trace of the papery lobing is always present to distinguish it from *Rinodina sophodes* (Group 20), which has similar spores. In well developed forms, the thinness of the tightly clinging tips separates it from all other species of *Physcia*. *P. stellaris* has usually a central crust, but its much thicker tips are pale gray, not brown. *P. obscura* and *P. endochrysea* have a dull drab shade, but their tips are loosely attached to the bark by many black holdfasts. *Parmelia olivacea* and its subspecies (Group 5) have brown, close-clinging lobes, and an often crust-like center, but their upper surface looks almost metallic, usually shining like bronze, while that of the *Physcia* is dull and delicate.

(Group 8 to be continued in Part 8)

RIDGEWOOD, N. J.